

in charge of Lieut. Blackett, R.N., and what he did every night before the eclipse was to get his staff of seven or eight to observe certain groups of stars from the deck of the ship or from the shore, and determine their magnitudes as well as they could, and make maps of them. It was perfectly wonderful how, after three or four nights, they could make a map of the constellation of Orion, not going very far wrong. That stood us in very good stead during the eclipse.

Each observer was supplied with a photograph of a small star chart of the region near the sun, prepared by Dr. Lockyer. This was afterwards supplemented by another on a larger scale photographed at the office of the Trigonometrical Branch of the Survey of India at Dehra.

Observations of Shadow Bands.

Staff-Surgeon Nolan, R.N., observed these phenomena with the help of two assistants. Previous to the eclipse a large white table-cloth was spread on a flat piece of ground in front of two walls intersecting at an angle of 115° , which were whitewashed.



FIG. 7.—The kinematograph hut.

Small Prism and Grating Observations.

The spectroscopic work was in charge of Lieut. Colbeck, R.N., and Senior Engineer Mountifield, R.N. I took out several spare prisms and spectroscopes with me in the hope they would be of service, and they were used to the very great advantage of science.

Meteorological Observations.

Mr. Eliot, the Meteorological Reporter to the Government of India, brought with him several important instruments with a view of making observations similar to those he had arranged along the whole line of totality. He was assisted by twelve volunteers.

Landscape Cameras and Kinematographs.

All the available landscape and hand cameras were put in charge of Mr. Turner, of the Survey Department, Calcutta, who was assisted by five volunteers.

As a well-defined shadow had been anticipated, the kinematograph was used for the first time in an attempt to photograph its passage through the air.

The Marquis of Graham brought out with him two kinematographs, one for the recording of the whole phenomenon of the eclipse, and the other for photographing the moon's shadow as it swept across the earth's surface. The latter was put in charge of Mr. H. P. Barnett, R.N., Paymaster, with one assistant. The kinematograph for the eclipse was worked by the Marquis of Graham himself, and five volunteers. The instrument was fed by a small cœlostat.

The above statements will give an idea of the completeness of the organisation rendered possible by such a wealth of observers, and it is to be hoped that the example set in 1898 may be followed in the eclipses of this and the following years. NORMAN LOCKYER.

THE YANGTZE VALLEY.¹

MRS. BISHOP'S volume gives an account of a journey undertaken, the author tells us, solely for recreation and interest after some months of severe travelling in Korea. The book is a valuable contribution to the literature of travel, both from the remarkable personality of the writer and from the public interest recently directed to our projected "sphere of influence" in the Yangtze Valley. The greater part of the route followed has become a "beaten track" for travellers who from time to time have recorded their experiences and supplied valuable statistical accounts of the potentialities of this part of China. The author, however, in her daring attempt to reach the heart of the Mantze country, entered upon new and untrodden ground, and has given a graphic account of her adventures in one of the most picturesque mountain lands of China, the home of this obscure aboriginal tribe.

The story is all the more fascinating because it is written by a woman who has been careful to note the details of her environment day by day in a manner quite her own, and always interesting. Some light has been thrown upon this race of mountaineers, who, physically and in their manners and customs, are a people apart from the Chinese, who have maintained their characteristics, their language, and their independence through the centuries, and at last have been driven by their foes to the mountain solitudes of Szechuan and other parts of the empire.

It is to be regretted that Mrs. Bishop was unable to add to her excellent series of photographs some types of the race, or to afford some clue to the language, which appears to be an unknown tongue written in Tibetan characters. They are, one would suppose, allied to the Sifan and Lolo visited by Baber.

The first chapter deals with the Yangtze Valley—our sphere of influence. Approximate figures are here set

¹ "The Yangtze Valley and Beyond." By Mrs. J. F. Bishop. Pp. xv + 557. (London: John Murray, 1899.)

down relating to geographical area and population, and the constant soil-creating and fertilising functions of the great river. The Yangtze and its many tributaries are described, supplemented by an account of the inestimable value of these affluents as highways of commerce. The annual rise of the Yangtze is dealt with, and its influence over the districts flooded during part of the year.

The burning questions of "spheres of influence" and the open door are noted as modes of expression designed to conceal (especially spheres of influence) "much greed for ourselves not always dexterously cloaked, and much jealousy and suspicion of our neighbours, and much interest in the undisguised scramble for concessions, in which we have been taking our share at Peking." All this while we ignore the men who have been for two thousand years making China worth scrambling for. The author dreads "breaking up the most ancient of earth's civilisations without giving any equivalent." After having read the book throughout, the impression left on one's mind is that China's most antiquated type of civilisation is not without its grave defects, and that it might be replaced with advantage by a fresh importation from any European state.

Theoretically, there is much virtue and goodness in the paternal government of China, while its practical results, as one sees them in the condition of the people, are far from satisfactory. The rulers have fallen away from the ancient paths of righteousness, and lapsed into iniquity. The *malfaisance* of Mandarins may not prove so oppressive in the interior of Szechuan as in other parts of China, where nature is less bountiful, and the consequent struggle for existence harder. The author says: "The human product of Chinese civilisation and government is to us the greatest of all enigmas," and so he remains to those who know him best. His best points are then catalogued correctly, and the qualities which are the making of him when an immigrant under a liberal and enlightened government in a colony such as the Straits Settlements, and which, at the same time, render him a most objectionable addition to a community where his thrift, sobriety and industry enable him to compete successfully in the lower fields of white labour. One peculiar phase of Chinese character may be noted, that is, the dignified gravity of the race, which one is disposed to think is the product of mingled vacuity and conceit, rather than the expression of deeply sensitive Confucian minds.

"The Yangtze basin is a magnificent sphere of influence for all the industrial nations for fair, if not friendly rivalry, and to preserve the open door there."

This squares with the consensus of opinions of travellers in that favoured region. It offers no field for emigration; it is now over-populated, hardly producing food enough for the requirements of its people, who during failure, or partial failure of crops, perish in thousands of famine and pestilence. It is alone to the commercial possibilities that will follow opening up the country, and exploiting its vast coal-fields and stores of mineral wealth, that foreign enterprise must look for its reward.

Shanghai is described and illustrated. The value of the exports and imports of this great trading centre is

set down at 37,000,000/ sterling per annum. Here British, American and French settlements adjoin, and one notes that nothing is said in praise either of the French settlement or French colonial aspirations. Civilisation of an antique and obsolete sort may have its charms; but the contrast drawn between the model European settlement of Shanghai and the Chinese city of like name leaves no shade of doubt as to the respective merits of the two civilisations—the old and the new. Here one is confronted with another enigma. For the past half century the Chinese city, in insanitary and withal dignified apathy, has been looking on this splendid European settlement, a fitting outpost of all that is best in modern advancement.



FIG. 1.—God of Thunder, Lin-Yang.

Mrs. Bishop says: "On returning to the broad, clean, well-paved and sanitary streets of foreign Shanghai, I was less impressed than before that many of its residents are unacquainted with the dark, crowded, dirty, narrow, foul and reeking streets of the neighbouring city. So native Shanghai, with its 5,600,000 souls, goes its sweltering way as of yore, breathing the mingled precepts of Confucius, and malodours of the waste products of centuries."

We breathe again freely as the author conveys us to Hangchow, giving a popular description of its picturesque surroundings, the present condition of the

grand canal, pointing out the cause of its falling into utter disrepair.

The city has a chequered history like that other favoured city Soochow. It is a centre of sericulture and resort of opulent and leisure-loving literates and merchants. The illustrations of this part of the work, in common with others scattered through the book, are remarkable for their artistic excellence and fine technical quality, reflecting great credit on the author, who is a lady successful in many pursuits.

There is an interesting account of Medical Missions in China, throwing light on the valuable work done by this important branch of Christian Missions. "I believe in Medical Missions, because they are the nearest approach now possible of the method pursued by the founder of the Christian faith." The Medical Mission has proved one of the most successful branches of mission work in China.

The division of missionaries into sects is unfortunate, and militates against success. Chinese are apt to inquire why such differences exist in the one faith, and within one's own experience to say that "when you have all made up your minds what to believe, come and teach us." But there remains the potent influence at work,

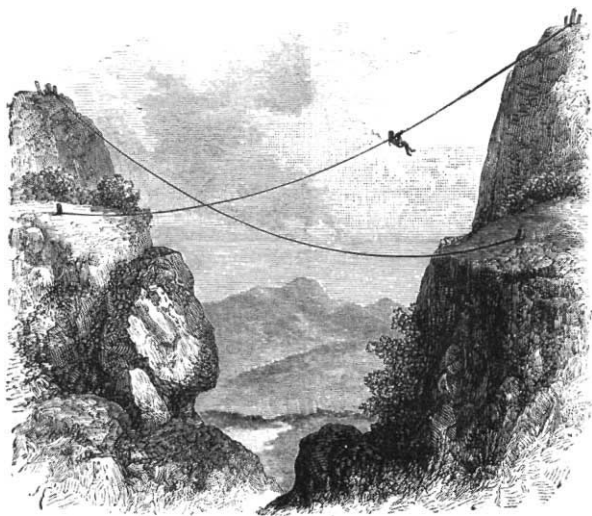


FIG. 2.—Tibetan rope bridge.

noted by the author, of the unselfish, helpful lives of the missionaries and their families.

Several chapters follow devoted to experiences of the voyage up the Yangtze, specially attractive to those interested in this quarter of Further Asia.

The gorges of the upper river have been frequently described, but any addition to one's knowledge of this section of the great waterway is always welcome, owing to the difficulty of navigation and danger caused by old and new rapids to native craft in the carrying trade. Mr. Little succeeded in taking a small steamer up the rapids to Chungkeng, but navigation of the gorges by steam must yet be more fully tested before it can be proved that the loss entailed by wreckage will not outweigh the advantages derived from the enterprise.

There are several mistakes in place names. One rather confusing error occurs in describing the Mi-tsang Gorge. It is set down in the index as Mitan Gorge, and the photograph showing the entrance to this gorge is labelled Ping-shan Gorge. It is at the entrance to this gorge that the great Ch'ing-tan rapid bars the way to steam traffic on these upper turbulent waters. Blackuton,

Thomson, Baber, Gill and others have passed this way, but Mrs. Bishop has been the first woman to give us the benefit of her keen observation, sense of humour, and literary talent in throwing some new light on native characteristics, and on weighty matters concerning this part of China.

The book must be read, and the reader will not be without his reward when he has finished the volume.

The most important part of the journey was the daring attempt to penetrate the mountain lands of the aboriginal Mantze, which nearly cost the author her life, and in which she succeeded so far as to be able to give a most interesting and graphic account of this obscure race. One would like to know something of their language, which is wholly different from Chinese, and written in Tibetan. It is also to be regretted that the camera of the intrepid explorer so scared the natives as to render portraiture impossible. The reader is purposely left to his own resources, and must read for himself the author's account of her adventures among the Mantze.

The work concludes with one or two brief essays:—"On the Poppy and its Use," "Christian Churches in China," "Secret Societies," "Questions of the Future," &c., subjects which have occupied the attention of other writers, disclosing a singular lack of unanimity of opinions on the part of the writers.

THE RELATION BETWEEN SCIENCE AND MEDICINE.

AN address upon the relation of science to experience in medicine, delivered to the Middlesex Hospital Medical Society by Sir J. Burdon-Sanderson, Bart., at the first meeting of the present session, is printed in full in the *Middlesex Hospital Journal* for December. The concluding part of the address is here reprinted, and the principles stated in it deserve careful consideration both from the point of view of science and of education. What Sir J. Burdon-Sanderson insisted upon throughout his address was that though the physician regards disease as a thing to be cured or prevented, while the investigator aims at discovering the causal relations between certain morbid changes and the conditions which give rise to them, both depend for their success upon the extent to which their faculties of observation have been developed. He held that medicine has hitherto advanced chiefly by the perfecting of its clinical method, using the expression in its modern and most comprehensive sense, but that future progress will be obtained by the scientific study of disease as a natural process. Some suggestions as to the best means to promote this advance are contained in the following extract from the address:—

We may, I think, rightly regard the Metropolitan schools collectively as constituting in themselves a great medical university. We do so in the hope that at no distant period they may be united for university purposes. Now, the two great functions of a university are education and the extension of knowledge by research. As regards the first I shall have nothing to say this evening. We may confidently anticipate that the clinical instruction given and the opportunity for clinical study afforded to students will improve year after year, and that practitioners will twenty years hence be even better informed, and their practice more sound than it is at present. But it is the other function of a university to which I would call your attention. Admitting, as I think must be admitted, that the Metropolitan schools have been hitherto, and will continue to be, admirable institutions for the training of men competent to exercise the healing art to the public advantage, it may still be asked whether our hospitals are, as they ought to be, observatories in which the scientific method is employed, not with a view to immediate utility, but for the eventual